REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-12 and 27 remain pending in this application.

The rejection applied to Claims 1, 2, 4-7, 12 and 27 under 35 USC 102(b) citing Thorp cannot be sustained.

The Examiner finds that Thorp describes a microelectronic device and referencing FIGs 9 and 10 show an embodiment where oligonucleotide probes (22) are immobilized adjacent to electrodes (21) concluding that "[g]iven that there are multiple electrodes, each of the electrodes may be a working electrode, a counterelectrode, or a reference electrode. Furthermore, any one of the electrodes is surrounded by other electrodes as shown in the figures. Thus there is at least one counterelectrode that surrounds a working electrode, thus meeting the limitations in instant claim 2." Page 3 of the Action.

Applicants disagree and point out that Thorp does not describe at least:

A working electrode (WE) and a counterelectrode (CE) for the working electrode, placed on the support in the vicinity of the attachment zone, wherein the working electrode borders or surrounds the attachment zone because the electrode for the probe of attachment zone depicted in Thorp's figure 9 surrounds the electrode and each of the electrodes in Thorp are for the detection of oxidation-reduction reactions within each of the probe zones (22) in Thorp and cannot be a counterelectrode for the working electrode as defined in the claims.

Thorp's electrodes do not apply an electric current or potential to the working electrode so as to cause a local variation in pH in the region of said attachment zone but rather are electrodes that detect the signal generated by the oxidation-reduction reaction that Thorp describes.

As apparent from the Abstract, Thorp methods and devices are designed to detect DNA hybridization with an oxidizing agent, such as a transition metal complex, and detecting an oxidation-reduction reaction.

Thorp's hybridization reaction, as described in col. 7, lines 41-57 contacts the DNA sample with the oligonucleotide probe to form a hybridized DNA and it is this reaction that is detected. In contrast, the claimed device, the electrode causes a local variation in pH in the region of said attachment zone.

Further, the electronic signal associated with occurrence of the oxidation-reduction reaction can be measured by the detection electrode in electronic communication with a suitable apparatus (column 10, lines 53-57).

An embodiment of Thorp's apparatus is described in column 13, line 12 to column 14, line 51 and FIG. 3 and includes sample containers (10) into which a probe (22) is introduced with additional electrodes to detect the oxidation-reduction reaction (column 13, lines 33-37).

Thus, the detection electrode(s) play(s) a role in the detection of the oxidation-reduction reaction and not ccausing a local variation in pH in the region of said attachment zone as claimed.

Thorp's embodiment of the device referenced in the rejection (FIG. 9) also substantively differs from that claimed. Notably, as illustrated at Figure 9, the immobilized capture probes (22) **surround** the conductive electrode (21). Thus, unlike the claimed device where the working electrode borders or surrounds the attachment zone, Thorp's device does not include the conductive electrode that surrounds, or borders the attachment zone (i.e., the immobilized capture probes). Quite the contrary, it is the opposite.

Applicants acknowledge the Examiner's comment that the other electrodes tied to specific probe regions are being interpreted as the WE bordering the attachment zone and the multiple electrodes can act as CE as in the claims. However, Applicants cannot agree and

submit that interpretations are not reasonable. Indeed, Thorp describes in the underlying description of FIG. 9 that each of the probe capture sites (22) is linked to the electrode 21 so that the electrode can detect the oxidation-reduction reaction via a suitable contact (23) for the device to be wired or operatively associated with the necessary electronic equipment for carrying out the detection of the oxidation-reduction reaction (column 21, lines 41-45). Thus, the multiple electrodes are each position to detect the reaction in the probe region (22) and would not be a working electrode (i.e., detect a signal of the oxidation-reduction reaction) from an adjacent or another probe binding site (22). Indeed, this would be inoperative because if the electrode for one probe site (22) can detect a signal from a second probe site then the detection of the oxidation-reduction reaction in the second probe site would occlude the signal from the first probe site (and perhaps the other way around) from each individual sites would be indistinguishable and/or nonsensical losing the sensitivity and ability to detect binding in each site as is required by Thorp.

Further, for similar reasons, the individual electrodes (21) associated with individual probe binding sites (22) cannot act as a counter electrode for an adjacent or another electrode because again the utility for being able to detect the specific signal of each individual probe binding site (when hybridized to a target) would be lost.

Accordingly, Thorp does not anticipate the claimed invention.

The rejection applied to Claims 1, 2, 4-7, 12 and 27 under 35 USC 102(b) citing Choong cannot be sustained.

Choong does not describe a working electrode (WE) and a counterelectrode (CE) for the working electrode, placed on the support in the vicinity of the attachment zone, wherein the working electrode borders or surrounds the attachment zone because Choong describes generally the presence of electrodes on the substrate (as noted by the Examiner in col. 8 and

9, see page 4 of the Action), Choong do not describe in these embodiments (nor is there an underlying figure to orient the positioning of those electrodes) in the manner as claimed. Indeed, as Choong exemplifies in Figs. 1 and 3 and in col. 10, lines 56-61, that "the electrodes do not come into contact with the sample, with the substrate and/or with the buffer". The electrodes implemented by Choong are also called "contactless electrodes" (col. 3, lines 17-20).

Choong does not describe with any specificity a substrate with a working electrode (WE) and a counterelectrode (CE) for this working electrode, placed on the support in the vicinity of the attachment zone, in which the working electrode borders or surrounds the attachment zone. Indeed, Choong's generalized disclosure in col. 8 and 9 provides no indication how or where those electrodes may contact the substrate and certainly not in the manner as claimed, particularly, when the only discussion in Choong as it relates to the positioning of the electrodes is not in contact with the substrate else the touted advantages of doing so would be lost (see again col. 10).

Withdrawal of the rejection is requested.

The rejections applied under 35 USC 103(a) citing Choong or Thorp in view of Segev cannot be sustained.

As already explained above, neither Thorp nor Choong describes a device as claimed and Segev does not compensate for these deficiencies.

Segev's method involves amplifying and detecting single or double-stranded target nucleic acid molecules or a minute sequence alteration (single base pair alteration) in a test sample. Segev also discloses a kit for implementing this method (see col. 1 10, lines 60-64).

Segev does not teach anything regarding a device in which the working electrode borders or surrounds the attachment zone and in which the working electrode and the attachment zone are separated by an empty space. One skilled in the art could not combine the recited references to reach the claimed invention.

Moreover, one skilled in the art would not be motivated to modify the devices of Choong or Thorp to reach the claimed invention.

According, Applicants respectfully request withdrawal of the rejections in view of Segev.

A Notice of Allowance is also requested.

Respectfully submitted,

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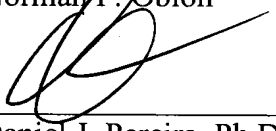

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